

Original Research Article

Peritoneal Dialysis Cannulations-Our Experience

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Abstract: In our institute peritoneal dialysis (PD) catheter insertion in a patient with end-stage renal disease (ESRD) has been routinely accomplished by a surgeon under general anaesthesia. That procedure often introduces delays in starting dialysis of patients, by passing golden period of patients which has already been consumed in utilizing an operating room as well as anesthesia services. As peritoneal dialysis catheter cannulation is simple, safe and time saving access procedure. In this context, operating room facilities and staff and general anesthesia services are not required and catheter insertion can be performed in a procedure room using local anesthesia, thereby minimizing the time for starting dialysis and completely bypassing the mortality risk associated with general anesthesia.

Keywords: Peritoneal dialysis, cannulation, outcomes, complications, end stage renal disease

INTRODUCTION

Peritoneal dialysis is a simple, safe and effective procedure which is used for patients with severe chronic kidney disease. This type of dialysis uses the patient's peritoneum in the abdomen as a membrane across which fluids and dissolved substances (electrolytes, urea, glucose, albumin, osmotically active particles, and other small molecules) are exchanged from the blood. It is an optimal dialysis modality for neonates[1]. It allows for slow removal of fluid & solutes while avoiding hemodynamic instability[2].

Insertion of Peritoneal dialysis (PD) catheter is done mainly by three approaches viz- surgical (open)placement, Peritoneoscopic (Laparoscopic) placement and Percutaneous placement[3].

Following are the Key technical issues includes-

- Pre op antibiotic prophylaxis
- Location of catheter tip-marking of abdomen prior to placement.
- Placement of deep cuff
- Placement of exit site-location on abdominal wall
 - direction downward
 - cuff relative to exit site
- Inserted through abdominal wall with least amount of tubing stress [4].

- Catheter material– silicon rubber only. Reduced risk for catheter related complications[5].
- Catheter design issue

The major complications of PD is at removing wastes from the body than hemodialysis, and the presence of the tube presents a risk of peritonitis due to the potential to introduce bacteria to the abdomen.

Present recommendations-

Antibiotic protocol against staphylococcus aureus

Exit site should be dry.

Flush before fill.

Catheter material.

Exit site care.

Training method.

Catheter design-straight & swan necked.

MATERIAL AND METHOD

P.D. catheter insertion in 125 patients (newborn & infants) in PICU & NICU undertaken at bedside by PSU on call in pediatrics (S.M.S. Medical College , Jaipur, Rajasthan) after checking list for insertion- written and informed consent, establish i/v access, ensure bladder emptied, clean with povidone iodine locally, inj. Lignocaine 1 % local infiltration, supine position on bed, incise skin 0.5-1.0 cm in

midline infra umbilical region, insert catheter with trocar into rectus abdominis, remove trocar and suture P.D. catheter in place, secure catheter with SLEEK, check

patency, observe P.D. effluence for blood and feces, catheter tip location.



Fig-1: Peritoneal dialysis cannula set

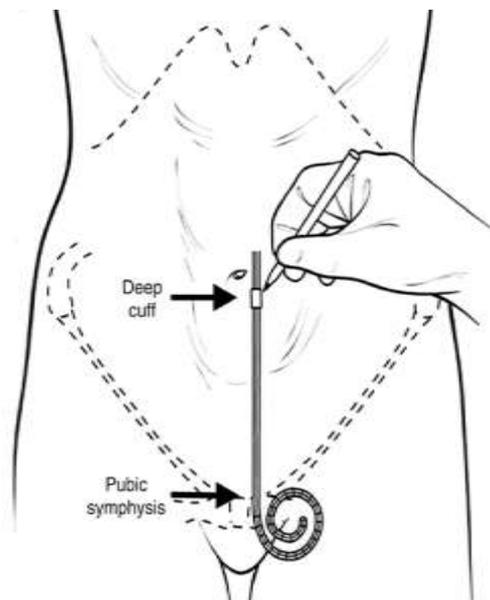
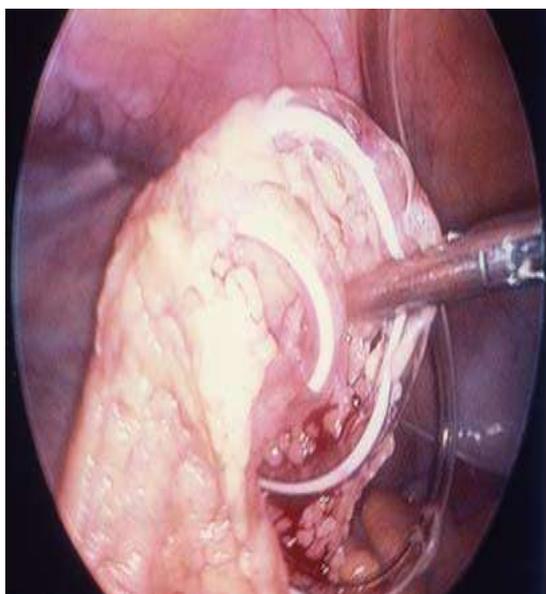


Fig-2: Demonstration of the procedure of cannulation

RESULTS

125 preterm newborn and infants (upto 1 year of age) who had been referred for peritoneal dialysis cannulation between jan 2015 to feb 2016.

85 patients (68 %) underwent successful dialysis, 32 patients (25.6 %) developed from soakage at exit site for that dressing was changed, 7 patients (5.6%) developed hemoperitoneum and 01 patient (0.8 %) suffered from bowel perforation with peritonitis who had previous history of abdominal surgery for malrotation.

Table-1: Results of peritoneal dialysis cannulation

Total number of patients	125
Successful dialysis	85 (68%)
Sockage at exit site	32 (25.6%)
hemoperitoneum	07 (5.6%)
peritonitis	01 (0.8%)

DISCUSSION

PD cannulation safe and successful access procedure. In this context, operating room facilities and

staff and anesthesia services are not required and catheter insertion can be performed in a procedure room using sedation or local anesthesia, thereby reducing costs and completely bypassing the mortality risk associated with general anesthesia[3,4,6].

This article presents PD access-related procedures currently performed by interventional nephrologists. Furthermore, some of the complicating issues (sockage from the side of P.D catheter, hemoperitoneum, catheter migration, bowel perforation especially in pt having history of prior abdominal surgery) related to PD catheter insertion .

CONCLUSION

Placement technique and skills of operator most important determinant of catheter outcome.

- Careful planning of exit site placement very important.
- Preop marking with patient recumbent best demonstrate practices for fashioning the exit site.
- Preop measurement of tunnel length as per space in pelvic cavity to minimize leakage leading to peritonitis.
- All above would minimize /eliminate need for temporary hemodialysis.

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